

IN THE SPECIFICATION

Kindly replace the following paragraphs in the Specification with the following rewritten paragraphs:

[0033] The cached memory system also makes it difficult for the DSP to guarantee completion of real-time processing tasks within specified time deadlines. Cache memories normally use “paging-on-demand”, which means that instructions and data are only fetched from the external memory when they are discovered to be missing in the cache memories. If the external memory happens to be busy when a cache miss occurs, then the DSP will be stalled until the external memory becomes free and can be accessed by the DSP to complete its cache fill. Thus, the DSP may not be able to perform/complete processing on real-time input data due to (1) the wait for the external memory to become free and/or (2) the overhead and delay associated with performing a cache fill from the external memory for a cache miss. Pre-fetch techniques may be used to try to fetch the next cache line in advance and minimize the likelihood of a cache miss. However, these techniques are often only partially effective because the cache controllers normally cannot see very far in advance.

[0061] For block 820, if a cache hit is declared for one processing unit (e.g., the DSP core) and a cache miss is declared for the other processing unit (e.g., the DMA controller) (i.e., the answer is ‘yes’ for block 822), then one unit is allowed to access the cache memory and the other unit is allowed to access the on-chip memory (block 824). Otherwise, if cache hits are declared for both processing units (i.e., the answer is ‘yes’ for block 826), then one processing unit is selected to access the cache memory and the other processing unit is stalled (block 828). Otherwise, if cache misses are declared for both processing units (i.e., the answer is ‘no’ for block 826), then either (1) one processing unit is allowed to access the on-chip memory or (2) both processing units are stalled to perform a cache fill of the cache memory (block 830).